

Remote I/O



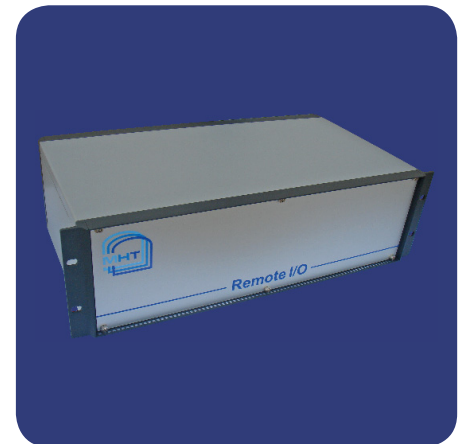
Field data acquisition system for reading sensor data and making it available to host systems via a single/dual digital fieldbus



RIO, Ex



RIO, Wall Mount



RIO, Rack Mount

Overview

The Remote I/O (RIO) can be used as a local or remote data acquisition system for collecting process data from various types of instruments and sensors.

The unit has up to six inputs which can either accept 4-20mA or HART sensor inputs. For the 4-20mA input a single sensor can be connected to the input.

The device will digitise the analogue signal and apply any scaling and offset in order to convert the data into engineering units. The 4-20mA sensor can be loop powered or passive.

For the HART input, the number of HART transmitters that can be connected is dependent on the application, the cable length and quality.

For non-IS applications up to 15 HART based transmitters could be connected, dependent on the cable length and quality. For IS applications the number of transmitters is less and depends on the current drawn by the transmitters. Typically, 2-5 units can be connected in an IS HART application depending on the transmitters.

Depending on the application, the RIO unit can either be mounted in the safe area or the hazardous area.

When installed in the hazardous area the RIO is mounted in an explosion-proof housing. When installed in the safe area, normally a rack or wall mount enclosure would be used.

The RIO has been designed to use modern state of the art analogue and digital electronics complete with a micro-controller that includes the software in the on board flash memory. Each input has precision components for filtering, amplification and analogue to digital conversion.

Fieldbus support

The unit is supplied as standard with a single fieldbus interface based upon 2-wire RS-485 signalling with a Modbus RTU Slave protocol.

As an option a second field bus interface can be fitted for dual redundant fieldbus communication. The fieldbus interfaces are 'plug in' modules and can be provided with a range of different electrical signaling and protocols, for example, Enraf BPM, 'Saab' TRL/2, Varec Mark/Space, and Whessoe Current Loop.

Features

- Configurable Fieldbus Outputs.
- 6 HART / 4-20mA IS Inputs.
- ATEX Approved.

Options

- Average Temperature Input.
- Multi-spot Temperature Input.
- Relay Outputs.
- Digital Inputs.
- Redundant Fieldbus Outputs.

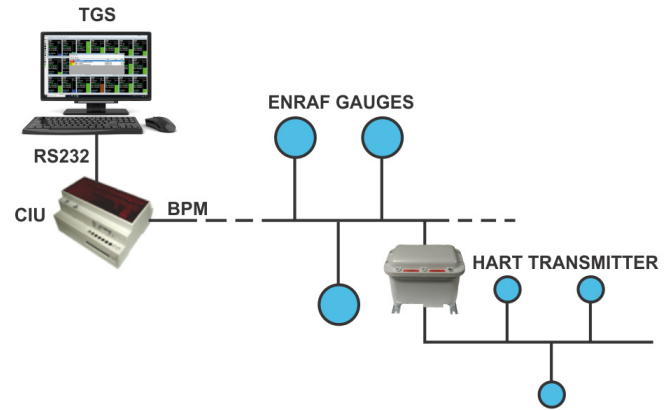
Applications

- Data Acquisition System for Level, Temperature Measurement Systems.
- General Remote I/O Unit for Analogue Inputs or HART Transmitters.
- Protocol Conversion for HART based transmitters.

Tank gauging application

The RIO can be used to integrate analogue and HART based sensor instruments into existing systems, legacy or otherwise. The wide choice of fieldbus interfaces available for the RIO allows tanks, that would otherwise not be automated, to be gauged by lower cost technologies and integrated into existing tank gauging systems.

The illustration shows the RIO being used to read either analogue or HART based instruments, and making data available to a Honeywell Enraf BPM fieldbus.



The host Tank Gauging System sees the HART instruments as though they were standard Honeywell Enraf instruments.

The application of the RIO in this way can be used with any of the main tank gauging system vendors such as Emerson, Endress+Hauser, Varec, etc.

Technical specifications:

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| Power: | 100-240 Vac 50-60 Hz 25 VA 0.375 A max |
| Certification: | ATEX II 2 G D Ex 'd' IIC T6 IECEX II 2 G D Ex d [ia] IIC T6 |
| Environment: | Hazardous Area Zone 1 |
| Operating temperature: | -20 °C to +55 °C |
| Storage temperature: | -40 °C to +85 °C |
| Enclosure: | Aluminium alloy Painted RAL 7035 grey epoxy |
| IP rating: | IP66 |
| Entries: | M20 threaded entries |

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|------------------------------|--|
| Terminations: | Screw terminals 2.5 mm ² capacity |
| External dimensions: | 300 x 220 x 235 mm |
| Fixings: | To suit M8 bolts, 4 positions |
| Weight: | 8 kg |
| No. of host ports: | 2 ports |
| Interfaces supported: | RS-232, RS-422/485, Honeywell Enraf BPM, 'Saab' Emerson/Rosemount TRL/2, Whesoe Current Loop, Varec Mark/Space, Modbus RTU, L&J Tankway, Motherwell, HART®, Scientific Instruments. |

External dimensions:

